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HYGROTHERMAL CONDITIONING OF GLASS EPOXY AND CARBON EPOXY COMPOISITE SPECIMENS USED FOR HANSSA -3 PROGRAM (FOR GENERATION OF HOTWET ALLOWABLES BY SID)

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Abstract: Considering the requirements projected by DGCA for obtaining the much needed data on Hot-wet allowables, several composite specimens were subjected to different humidity and temperature environments. This report presents the details of such hygrothermal conditioning and the moisture absorption characteristics of BID (GFRP) and UD (CFRP) specimens all fabricated with 65 +/- 3% fibre weight fraction using the room temperature curing LY 5052 (Epoxy) system and a vaccum bag moulding process. Specimens were edge coated and step post cured (50°C for 1/2 hr, 70°C for 1 hr and 85°C for 2 hrs.) and were exposed to different sets of Temperature and percentage Relative humidity conditions(45°C / 95 % RH) using environmental chamber available at the FRP_PP. As per the DGCA suggestions the specimens saturated at 45°C/ 95 %RH were subsequently furnished to Structural Integrated Division (SID),NAL for generating test data on Hot-wet means and design allowables.